

HETEROMETABOLA II

ODONATA

BY

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SUBORDER ZYGOPTERA

FAMILY COENAGRIONIDAE.

Genus DREPANOSTICTA LAIDLAW.

Drepanosticta bispina sp. nov.

Fig. 1.

Material received :

1 ♀, Harau Kloof (Sumatra), 23.IV.1929.

DESCRIPTION : Labium white; labrum turquoise blue narrowly bordered with black; anteclypeus blue; rest of head including eyes black.

Prothorax creamy yellow except the posterior lobe which is black; this latter structure broad and wide and furnished at each outer angle of the posterior border, which is broadly convex, with a robust strongly curled spine. Two rounded bosses on dorsum of middle lobe.

Thorax blue black as far lateral as the antero-lateral suture, beyond which the sides pale blue with a diffuse brown stripe on the postero-lateral suture; beneath white.

Legs yellowish, the hinder pair of femora black on extensor surface.

Wings hyaline; pterostigma with the costal side considerably shorter than the posterior, covering rather more than 1 cell, black framed in thick black nervures, which latter are lined finely inwardly with white; 13 to 14 postnodal nervures in forewings, 13 in the hind; *Ab* and *Ac* meeting very obliquely, the former running to the underside of discoidal cell in all wings.

ABDOMEN : Segment 1 white with a black dorsal spot; segments 2 to 7 blackish brown paling towards the base, deepening to black at apical end of all segments; remaining segments missing.

Length of hindwing 22 mm., of the first seven segments of abdomen 23 mm.

This new species belongs to a group of *Drepanostictas* which ranges from Java and Sumatra to New Guinea, and is particularly closely related to *D. spatulifera* Lieftinck (Java), *D. siebersi* Fraser (Java) and *D. gazella* Lieftinck (Java). The former has the prothoracic horns absent in the female; in the female of

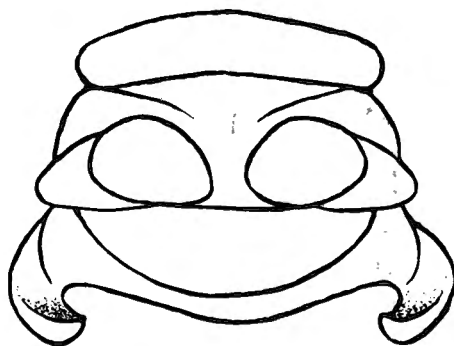


FIG. 1. — Prothorax of *Drepanosticta bispina* sp. nov., ♀.

D. siebersi they are mere conical processes, whilst in *D. gazella* they are described as « bud-like ». The nodal index in all these three species is higher than in the new species. *D. robusta* Fraser (Kei Island) has the female prothorax simple and without horns; *D. sundana* (Kruger) (Java and Sumatra) has the prothoracic horns in the female shaped like the antennae of a butterfly; whilst *D. krugeri* Laidlaw has the same organs absent in the female; both these species are considerably larger than the new species.

Genus IDIOCNEMIS SELYS.

Idiocnemis bidentata SELYS.

Idiocnemis bidentata SELYS. (Ann. Mus. Dresd., III, p. 321 [1878]; Ann. Mus. Civ. Genov., XIV, p. 313 [1879]; Mém. Cour., XXXVIII, p. 108 [1886]. — KIRBY, Cat. Odon., p. 127 [1890]. — RIS, Nova Guinea, XIII, Zool., pp. 82, 120 [1914].)

Material received :

1 ♂, and 3 ♀, Sakoemi (New Guinea), 11.III.1929, all more or less incomplete.

All the specimens have largely lost their markings from decomposition but such as remain do not differ from type; the antehumeral blue stripes are slightly convex outwards and are definitely broader below than above; segment

1 has a triangular black spot on the dorsum, its base on apical border of segment; the blue markings of abdomen have elsewhere faded and segments 7, or 8 to 10 are lost in all specimens.

Genus COPERA KIRBY.

Copera marginipes (RAMB.).

Platycnemis marginipes RAMBUR. (Ins. Névropt., p. 240 [1842].)

Psilocnemis marginipes SELYS. (Bull. Acad. Belg. [2], XVI, p. 168 [1863]; Mem. Cour., XXXVIII, p. 123 [1886]. — KRUGER, Stett. Ent. Zeit., p. 102 [1898]. — SELYS, Ann. Mus. Civ. Genov. [2], Vol. X, XXXII, p. 501 [1891].)

Psilocnemis striatipes SELYS. (Bull. Acad. Belg. [2], XVI, p. 169 [1863].)

Platycnemis lacteola SELYS. (Bull. Acad. Belg. [2], XVI, p. 167 [1863].)

Copera marginipes KIRBY. (Cat. Odon., p. 129 [1890]; Journ. Linn. Soc. [Zool.], Vol. XXIV, p. 560 [1894]. — MARTIN, Mission Pavie, p. 18 [sep.] [1904]. — LAIDLAW, Fascic. Malay [Odon.], Pt. II, p. 8 [1907]. — RIS, Suppl. Ent., No. V, p. 18 [1916]; — LAIDLAW, Rec. Ind. Mus., Vol. XIII, pp. 322, 337, Pl. XIV, fig. 2 [1917]. — FRASER, Journ. Bom. Nat. Hist. Soc., Vol. XXVII, p. 543 [1921]; *Ibid.*, Vol. XXIX, p. 744 [1923]; Rec. Ind. Mus., Vol. XXVI, pp. 428, 498 [1924]. — LAIDLAW, Spolia Zeylanica, XII, pp. 364, 365 [1924]; Spolia Mentaw. [Odon.] Journ. Malay, Br. Roy. Asia. Soc., Pt. II, pp. 218, 230 [1926].)

Material received :

1 ♂, Harau Kloof (Sumatra), 23.IV.1929. Segments 5 to 10 missing.

In the absence of the terminal segments of the abdomen, carrying with them the anal appendages, it is impossible to be altogether certain of the determination of this specimen, but from the markings I think there is little doubt as to its being *C. marginipes*.

The markings have been unusually well preserved, and as considerable diversity exists in species from different localities, they are worth while recapitulating.

The whole of face and labrum greenish yellow or pale ochreous, with two small round black spots on anterior border of postclypeus and the base of same narrowly black. Frons and vertex black, the latter traversed posterior to the bases of antennae by a bright greenish yellow stripe from eye to eye and including the ocellar space; occiput black with a transverse stripe behind tapering inwards and confluent laterally with the yellow stripe on vertex. The broad black spot enclosed by these two stripes sending two small processes forward onto the ocellar space.

Prothorax with a broad yellow stripe on each side enclosing a black « maltese cross » on the dorsum.

Thorax broadly black on dorsum with narrow curved antehumeral yellow stripes which are split into two by the humeral suture in their upper half;

laterally the mesepimeron and metepimeron bright greenish yellow, the posterior half of former black enclosing a sinuous stripe of the yellow groundcolour; the latter with an elongated triangle of black on its superior and anterior part. Unmarked beneath. Legs bright citron yellow; tibiae of the two hinder pairs of legs moderately dilated.

Abdomen black marked with yellow as follows. Segment 1 with the apical border, a stripe on the sides and two crescentic dorsal spots; segment 2 with the

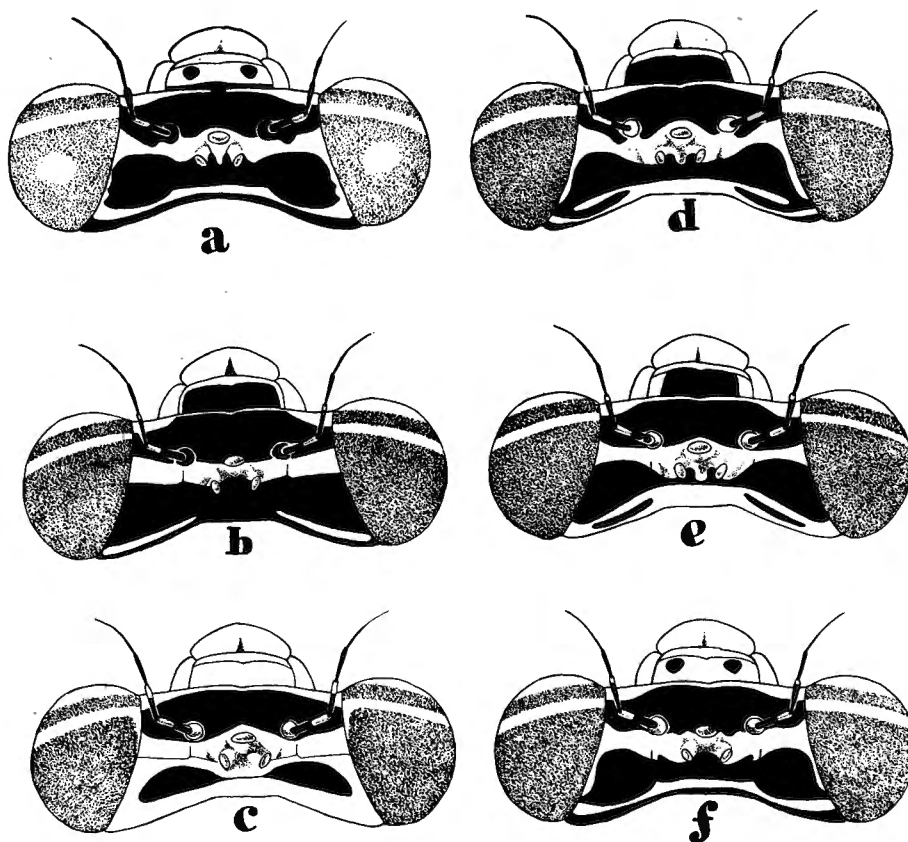


FIG. 2. — Dorsal view of head of *Copera marginipes* (RAMB.) showing the marked variation in markings.

a. From Sumatra; b. From Coorg, India; c. From Siam; d. From Assam; e, From Poona, Deccan, India; f. From Maymyo, Burma.

sides broadly and a dorsal stripe crossed subapically and resembling a gladiator's sword; segments 3 and 4 with a narrow basal annule confluent with a middorsal stripe which extends nearly to apical end of segments. Remainder missing.

A large number of local races have been named from time to time, either as subspecies or as different species but in view of the great variability of the

insect, even in the same localities, it seems fairly clear that we are dealing with but one species. It is to be noted that gradations of its markings run into those of its near relative *C. vittata*, so that the shape and length of the superior anal appendages seems to be the only distinctive character to rely upon.

DISTRIBUTION : Throughout southern Asia from India and Ceylon to the Sondaic islands. The type comes from Java.

Genus PSEUDAGRION SELYS.

Pseudagrion pruinorum (BURM.).

Agrion pruinorum BURM. (Handb. Ent., II, p. 821, No. 19 [1839].)

Pseudagrion pruinorum SELYS. (Bull. Acad. Belg. [2], XLI, p. 517 [1876]. — KIRBY, Cat. Odon., p. 153 [1890]. — KRUGER, Stett. Ent. Zeit., p. 119 [1898]. — FRASER, Treubia, Vol. VIII, Liv. 3-4, p. 469 [1926].)

Material received :

2 ♂♂, 2 ♀♀, Tjipanas (Java), 25.XII.1928 and Harau Kloof (Sumatra), 23.IV.1929. All specimens more or less defective.

These four specimens do not differ in any way from type. The type is from Java, but Kruger has reported it from Sumatra, and the author has specimens from Siam and Lower Burma which do not differ in any way from Java specimens which he has examined.

Genus CERIAGRION SELYS.

Ceriagrion cerinorubellum (BRAUER).

Agrion cerinorubellum BRAUER. (Reise d. Novara [Neur.], p. 59 [1866].)

Pyrrhosoma cerinorubellum BRAUER. (Verh. Zool. Bot. Ges. Wien, XV, p. 511 [1865].)

Ceriagrion cerinorubellum SELYS. (Bull. Acad. Belg. [2], XLII, p. 59 [1876]. — KIRBY, Cat. Odon., p. 154 [1890]; Journ. Linn. Soc. Zool., Vol. XXIV, p. 564 [1894]. — KRUGER, Stett. Ent. Zeit., pp. 119-120 [1898]. — SELYS, Ann. Mus. Civ. Genov. [2], Vol. VII [XXVII] [1889]. — KARSCH, Ent. Nach., XVII, No. 16 [1891]. — LAID., Skeat Exped., Pt. II [Odonata], p. 388 [1902]; RIs, Abh. d. Senckenb. Nat. Gesell., XXXIV, p. 519 [1913]; Tijd. v. Ent., LVIII, p. 13 [sep.] [1915]. — LAID., Rec. Ind. Mus., Vol. XII, pp. 133-135 [1916]; *Ibid.*, Vol. XVI, p. 188 [1919]; Proc. Zool. Soc. Lond., p. 335 [1920]. — FRAS., Journ. Bom. Nat. Hist. Soc., Vol. XXIX, p. 748 [1923]. — LAID., Spolia Zeylanica, Vol. XII, p. 369 [1924]. — FRAS., Rec. Ind. Mus., Vol. XXVI, pp. 428, 492, 493 [1924]. — LAID., Spolia Mentawensis, Journ. Malay Br. Roy. Asia. Soc., Vol. IV, Pt. II, p. 231 [1926].)

Material received :

1 ♂, Samarinda (Borneo), 9.II.1929. Abdominal segments 6 to 10 missing.

The thoracic markings of this single specimen are very poorly defined, and

this does not seem to be the result of decomposition as the beautiful colouring of the abdomen is well preserved.

Distributed throughout India, Ceylon, Burma, Malaysia, Sumatra, Java and Borneo, the latter island representing its most westerly distribution so far as at present known. The species is distributed in a peculiarly sporadic manner, colonies cropping up in far removed localities, thus only four of such have been reported for the whole of the Indian Continent-Assam, Bihar, Coorg and Malabar-, and in these large districts, in only one very restricted locality of each.

Genus AGRIOCNEMIS SELYS.

Agriocnemis pygmaea (RAMB.).

Agrion pygmaeum RAMB. (Ins. Névropt., p. 278 [1842]. — BRAUER, Zool. Bot. Ges. Wien, 14, p. 161 [1864]; Novara, p. 103 [1866].)

Agrion velare HAGEN. (Zool. Bot. Ges. Wien, 8, p. 479 [1858].)

Agriocnemis pygmaea SELYS. (Syn. Agr. 5me legion : Agrion [suite et fin], p. 52 [1877]. KIRBY, Cat. Odon., p. 158 [1890]. — SELYS, Ann. Mus. Civ. Genov., XXX, p. 518 [1891]. — KIRBY, Linn. Soc. Journ. [Zool.], 24, p. 564 [1893]. — RIS, Tijds. v. Ent., 55, p. 159 [1912]. — CAMPION, Trans. Linn. Soc. Lond., 15, 4, p. 443 [1913]. — LAID., Rec. Ind. Mus., Vol. VIII, p. 348 [1914]; *Ibid.*, Vol. XVI, pp. 171, 178 [1919]. — FRAS., Rec. Ind. Mus., Vol. XXIV, p. 309, 310 [1922]; Journ. Bom. Nat. Hist. Soc., Vol. XXIX, p. 747 [1923]. — LAID., Spolia Zeylanica, Vol. XII, p. 372 [1924]. — FRAS., Ind. Mus., Vol. XXVI, p. 490 [1924].)

Agriocnemis velaris SELYS. (Ann. Soc. Espan. Hist. Nat., II [p. 29 sep.] [1882]. — KIRBY, Cat. Odon., p. 158 [1890]; Linn. Soc. Journ. [Zool.], XXIV, p. 564 [1893]. — MARTIN, Mém. Soc. Zool. France, XIX, p. 248 [1901]. — TILLYARD, Proc. Linn. Soc. N. S. Wales, XXXII, p. 388 [1907].)

Agriocnemis hyacinthus TILLYARD. (Proc. Linn. Soc. N. S. Wales, p. 457, tab. 48, fig. 15-16 [1913].)

Material examined :

1 ♀, Tjipanas (Java), 25.XII.1928. (Wings on left side missing.)

The single specimen is a heterochrome and somewhat teneral female, the prevailing groundcolour one of rose-red with the following black markings, the base of the labrum broadly, the whole of postclypeus, a very broad transverse stripe on vertex confluent with a black polar cap on each eye. The postocular space and occiput are entirely rose-red. Dorsum of prothorax irregularly marked with black and a median stripe on dorsum of thorax extending outwards to about midway between the middorsal carina and humeral suture. The sides are uniform red without any suggestion of a darker band enclosing antehumeral stripes. Abdomen with fine black apical rings to segments 2 to 6, and the dorsum of segments 6 to 9 broadly black, segment 10 being black at the base only. This species, like all the rest of the genus, is red in the teneral stage and sub-

sequently develops along lines which ultimately result in isochromatic or heterochromatic forms, so that a long series of vari-coloured forms may be found.

The species, although the smallest of the order, has one of the widest distributions, this extending from India to Australia and the Pacific Isles, at least as far as Samoa.

Genus ISCHNURA CHARPENTIER.

Ischnura pruinescens (TILLYARD).

Agriocnemis pruinescens TILLYARD. (Proc. Linn. Soc. N. S. Wales, XXXI, p. 191, tab. 17, fig. 9a, b [1906]; *Ibid.*, XX, p. 385 [1907].)

Ischnura pruinescens RIS. (Abh. d. Senckenb. Natur. Gesell., Bd. XXXIV, pp. 515, 516 [1913].)

Material received :

1 ♀, Angi Gita (New Guinea), 10.III.1929.

The specimen, which is a heterochrome, does not differ from the co-type female described by Dr. Tillyard. The position of the arc, slightly but distinctly distad the level of the distal antenodal nervure suffices to determine it. It was this latter which lead its author to place it in genus *Agriocnemis*, but the difference in the shape of the pterostigma and the spine on the inferior surface of segment 8 in the female definitely places it in genus *Ischnura*.

The species has been reported from Queensland and other parts of Australia, New Guinea being an extension of its distribution.

FAMILY AGRIONIDAE.

SUBFAMILY AGRIONINAE.

Genus NEUROBASIS SELYS.

Neurobasis chinensis (FABR.).

Libellula chinensis F. (Linn. Syst. Nat., I, p. 545, No. 15 [1758]. — EDWARDS, Nat. Hist. Birds, III, tab. 112 [1750]. — DONOVAN, Ins. China, tab. 46, fig. 1 [1798].)

Agiron nobilitata F. (Gen. Ins., p. 248 [1776].)

Agriion chinensis GUÉRIN. (Icon. R. Anim., Ins., p. 382, tab. 60, fig. 4 [1829-1844].)

Calopteryx chinensis RAMB. (Ins. Névropt., p. 226 [1842].)

Calopteryx dispadilis RAMB. (Ins. Névropt., p. 224 [1842].)

Calopteryx sinensis WALKER. (List. Neur. Ins. Br. Mus., IV, p. 602 [1853].)

Neurobasis chinensis SELYS. (Syn. Cal., p. 18 [1853]; Mon. Cal., p. 72 [1854]; Bull. Acad. Belg. [2], XLVII, p. 359 [1879]. — KIRBY, Cat. Odon., p. 102 [1890]; Journ. Linn. Soc. Zool., XXIV, pp. 545, 558 [1893]. — SELYS, Odon. Japon. Ann. Soc. Ent. Belg.,

XXVII, p. 149 [1886]. — FÖRSTER, Ann. Soc. Ent. Belg., XLI, pp. 204-210 [1897]. — KRUGER, Stett. Ent. Zeit., pp. 74, 75 [1898]. — LAID., Proc. Zool. Soc. Lond., pp. 86, 87 [1902]. — WILLIAMSON, Proc. U. S. Nat. Mus., Vol. XXVIII, p. 187, fig. 18 [1904]. — LAIDLAW, Fascic. Malay. Odonata, Part I, pp. 192, 193 [1906]. — RIS, Ann. Soc. Ent. Belg., LV, p. 234 [1911]; Fauna Simalur [Odonata], p. 6 [1914]. — LAIDLAW, Rec. Ind. Mus., Vol. VIII, p. 340 [1914]; *Ibid.*, Vol. XIII, p. 25 [1917]. — TILLYARD, Biology of Dragonflies, pl. fig. 7 [1917]. — MUNZ., Mem. Amer. Ent. Soc., No. 3, pl. III, fig. 14 [1919]. — FRASER, Journ. Siam. Nat. Hist., Vol. III, No. 4, p. 459 [1919]. — LAID., Proc. Zool. Soc. Lond., p. 325 [1920]. — FRASER, Journ. Siam. Soc. Nat. Hist., Vol. IV, p. 164 [1921]; Rec. Ind. Mus., Vol. XXVI, pp. 428, 479 [1924]. — LAIDLAW, Spolia Zeylanica, Vol. XII, p. 355 [1924]. — FRASER, Treubia, Vol. VIII, Livr. 3-4, p. 469 [1926]; Journ. Siam. Nat. Hist., Vol. VII, No. 2, p. 88 [1927].)

Material examined :

- 1 ♂, 1 ♀, Takengon Atjeh (Sumatra), 18.IV.1929; 2 ♂♂, 1 ♀, Aer Poeti (Sumatra), 24.IV.1929.

Not differing from type; the nodal spots and pterostigma in the females are almost white and are well developed in all three specimens. A very common and widely spread insect, found throughout the whole of south Asia from India to China and with well defined local races in the Philippines, South China and Australia. A new species is described below under the name of *N. leopoldi* from New Guinea.

Neurobasis leopoldi sp. nov.

Material examined :

- 1 ♂, Waideri River (New Guinea), 5.III.1929.

MALE : Abdomen 49 mm. Hindwing 33 mm.

HEAD : Labrum and bases of mandibles bright citron yellow, the base of the former rather broadly black, this actually extending to anterior border of lip at its middle; the inner part of latter also black; anteclypeus dark brown; postclypeus brilliant metallic emerald green; frons and fore part of vertex black; basal two segments of antennae pale yellow; posterior part of vertex and occiput metallic emerald green, with a small round spot of yellow on the outer side of each posterior ocellus; eyes dark brown. Labium black.

Prothorax and thorax metallic emerald green, the latter with a narrow yellow stripe on the postero-lateral suture. Blackish brown beneath. Legs black, coxae and trochanters and flexor surface of femora ochreous.

WINGS : Forewings hyaline uniformly tinted with pale greenish-yellow and with nervures metallic green; pterostigma absent in all wings; hindwings metallic green and purple or royal peacock blue, the inner three-fifths metallic purple with green neuration, bordered outwardly with metallic emerald green, this border strongly convex and deepening towards posterior part of wing, outer two-fifths deep metallic peacock blue as in *N. kaupi*, the transition from one colour to the other gradual and the neuration in the distal portion metallic blue;

about 40 antenodal nervures and 54 postnodals to forewings, 36 antenodal and about 40 postnodal nervures in the hind; 10 to 13 transverse nervures in the discoidal cells of all wings; 6 median transverse nervures in all wings.

Abdomen emerald metallic green throughout. Anal appendages black; superiors compressed in the basal half, flattened and spatulate in the apical, spined outwardly and obtuse at apex; inferiors slightly shorter, broad at base, tapering to apex which is blunt and with a short spine on the inner side.

This new species is closely related to *N. chinensis*, resembling it in most details as regards the body but differing markedly in the marking and colouring of the hindwings, which give one the impression of what a hybrid between *N. chinensis* and *N. kaupi* might be like. The hindwing is slightly broader than in *N. chinensis* and more narrow than in the latter. The change in the green metallic basal portion of hindwing, in the latter, is abrupt to black, and the dividing line is straight from costal to posterior margin of wing. In the new species, the change from one colour to the other is gradual and the dividing line is very strongly convex. In *N. anderssoni* Sjöst., the base of forewings is violet, the apex of hind hyaline.

***Neurobasis kaupi* BRAUER.**

Neurobasis kaupi BRAUER. (Verh. Zool. Bot. Ges. Wien, XVII, p. 293 [1867]. — SELYS, Bull. Acad. Belg. [2], XXVII, p. 649 [1869]. — KIRBY, Cat. Odon., p. 102 [1890]. — SELYS, Mitt. Mus. Dresden, p. 295 [1878]; Syn. Cal. 4me. Add., p. 14 [1879]. — HAGEN, Zool. Bot. Ges. Wien, XXXVII, p. 647 [1887]. — KARSCH, Abh. Sencken. Ges., XXV, p. 212 [1900]. — NEEDHAM, Proc. U. S. Nat. Mus., Vol. XXVI, p. 754, fig. 43 [1903]. — RIS, Suppl. Ent., No. 5, p. 315 [1916].)

Neurobasis chinensis race *kaupi* SELYS. (Ann. Soc. Ent. Belg. [2], XLI, p. 429 [1879].)

Material received :

4 ♂♂, Celebes, Menado, coll. Van Braekel, without date.

All the specimens are true to type; one has the terminal segments of abdomen missing. The species appears to be confined to the Celebes and Moluccas.

SUBFAMILY LIBELLAGINAE.

Genus MICROMERUS RAMBUR.

***Micromerus xanthocyanus* SELYS.**

Micromerus xanthocyanus SELYS. (Bull. Acad. Belg. [2], XXVII, p. 666 [1869]; Mitt. Mus. Dresden, p. 296 [1878]. — KIRBY, Cat. Odon., p. 115 [1890]. — RIS, Nova Guinea, XIII, Zool., 2, p. 119 [1915]; Suppl. Ent., No. 5, p. 308 [1916].)

Material received :

1 ♀, 4 ♂♂, Tondano-Menado (Celebes-Menado), coll. Van Braekel, without date.

All four specimens are teneral so that the abdominal markings are ochreous

or yellow, not blue. The black apical marking of forewings is only just becoming apparent; the pterostigma is white to bright ochreous and the subcosta and *R* to within a few cells of the pterostigma, in hindwing only, are bright yellow. The markings of abdomen, except for their colour, do not vary markedly from the excellent figure given by Dr. Ris in the Suppl. Ent., *l. c.* The species has the same distribution as the last.

Genus RHINOCYPHA RAMBUR.

Rhinocypha tincta RAMBUR.

Rhinocypha tincta RAMB. (Ins. Névropt., p. 237 [1842]. — SELYS, Syn. Cal., p. 64 [1853]; Mon. Cal., p. 223 [1854]; Bull. Acad. Belg. [2], XXVII, p. 663 [1869]; *Ibid.*, [2], XXXV, p. 490 [1873]; *Ibid.*, XLVII, p. 395 [1879]. — RIS, Nova Guinea, XIII, Zool., p. 88, fig. 7 [1915]; Abh. Sencken. Natur. Gesell., XXXIV, p. 504 [1913].)

Libellula tincta WALK. (List. Neur. Ins. Br. Mus., IV, p. 646 [1853].)

Material received :

3 ♂♂, Sakoemi (New Guinea), 11.III.1929. One wing missing in two of the specimens.
1 ♀, same locality, 12.III.1929.

Two of the males are adult and are quite typical. The colouring of the wings corresponds to the figure given by Dr. Ris, *l. c.* In the third male, the dark colouring of the wings is only partially developed, and the markings of the body are still yellow, not blue.

Abdomen 18 mm.; hindwing 21 mm. The colouring of the pterostigma in the teneral male is creamy yellow, black at its proximal end. The species is found in the Philippines in addition to New Guinea, Aroe and Waigou islands.

SUBORDER ANISOPTERA

FAMILY AESCHNIDAE.

Genus ANAX LEACH.

Anax gibbosulus RAMBUR.

Anax gibbosulus RAMB. (Ins. Névropt., p. 187 [1842]. — BRAUER, Reise d. Novara. Neur., p. 62 [1866]. — KIRBY, Cat. Odon., p. 84 [1890]. — KRUGER, Stett. Ent. Zeit. [1898]. — MARTIN, Cat. Coll. Selys Aeschnines, p. 24 [1908]. — RIS, Abh. d. Senkenb. Natur. Gesell., XXXIV, pp. 526, 527 [1913].)

Anax formosus HAGEN. (Verh. Zool. Bot. Wien, XVII, p. 42 [1867]. — KRUGER, *Loc. cit.* [1898]. — RIS, *Loc. cit.* [1913]. — MARTIN, Cat. Coll. Selys Aeschnin., p. 24 [1908].)

Anax panybeus HAGEN. (Verh. Zool. Bot. Ges. Wien, XVII, p. 39 [1867]. — KIRBY, Cat. Odon., p. 84 [1890]. — KRUGER, *Loc. cit.* [1898]. — MARTIN, *Loc. cit.*, p. 24 [1908]. — RIS, *Loc. cit.* [1913].)

Material examined :

1 ♂, 1 ♀ (Celebes, Menado) and Angi Gita (New Guinea), 10.III.1929.

The two specimens are determined by the transverse black bar on front of frons, confluent with a broad basal stripe of the same colour. The male has the 3rd segment slightly constricted and elongate, far less so than is said to be the case in *A. guttatus*, but the specific differences between the two are very slender. *Anax guttatus*, *A. gibbosulus*, *A. formosus* and *A. panybeus* are probably synonymous or mere races of one form. *A. gibbosulus* has been reported from Sumatra, Moluccas, Ternate, Ceram, Kei, Aroe and New Guinea; this being the first report of the species from Celebes.

Genus ANACIAESCHNA SELYS.

Anaciaeschna jaspidea (BURMEISTER).

Aeschna jaspidea BURM. (Handb. Ent., II, p. 840, No. 16 [1839].)

Anax jaspidea BRAUER. (Reise d. Novara, Neur., p. 63 [1866].)

Aeschna tahitensis BRAUER. (Verh. Zool. Bot. Ges. Wien, XV, p. 907 [1865]; Reise d. Novara, Neur., p. 73 [1866]. — HAGEN, Verh. Zool. Bot. Ges. Wien, XVII, p. 48 [1867].)

Aeschna jaspideus HAGEN. (Verh. Zool. Bot. Ges. Wien, XVII, p. 32 [1867].)

Anaciaeschna jaspidea KIRBY. (Cat. Odon., p. 86 [1890]. — MARTIN, Cat. Coll. Selys, Aesch., pp. 30, 31, fig. 25 [1908-1909]. — LAID., Rec. Ind. Mus., Vol. XXII, p. 87 [1921]. — RIS, Nova Guinea, XIII, p. 123 [1919]. — FRASER, Journ. Bom. Nat. Hist. Soc., Vol. XXVIII, pp. 483, 484 [1922]; *Ibid.*, Vol. XXIX, p. 67 [1923]; Rec. Ind. Mus., Vol. XXVI, pp. 427, 465 [1924].)

Material received :

1 ♀, Sumatra, Lebrun, without date.

The specimen is quite typical but unusually robust, its measurements being : abdomen with appendages 50 mm.; hindwing 45 mm.

The species has a wide distribution from India and Ceylon to Oceania. The author has specimens from Java, Siam, various parts of India, and Samoa and except for variations in size, and perhaps some tinting of the wings due to age, these show remarkable little variation.

Genus GYNACANTHA RAMBUR.

Gynacantha kirbyi KRUGER.

Gynacantha kirbyi KRUGER. (Stett. Ent. Zeit., LIX, p. 270 [1898]. — RIS, Nova Guinea, XIII, pp. 107, 110 and 123 [1919].)

Material received :

1 ♂, Sakoemi, Moemi (New Guinea), 13.III.1929.

The single specimen is particularly large. Abdomen 51 mm., hindwing 52 mm., anal appendages 8 mm. The wings are uniformly tinted pale brown with a slight amber tint at the extreme bases, especially of the hind. Nodal index : 28 postnodals and 31 antenodals in forewings, 30 postnodals and 21 to 22 antenodals in the hind; 7 to 10 cross nervures in hypertriangles of forewings, 6 to 7 in the hind; 7 to 8 cells in triangles of forewings, 5 to 6 in the hind; 6 to 8 médian nervures; 15 cells in the anal loop; the 1st and the 9th are the primary antenodals.

The black T-spot on the frons is well marked and the dark ochreous markings on segments 3 to 8 more or less defined. As regards the relative lengths of the anal appendages, the inferior is nearer one-fourth the length of superiors (which are 8 mm.) than one-fifth, this being affected by the angle from which viewed, as will be evident from a study of the figure given by Dr. Ris, where they are not more than one-third the length.

Confined so far as known at present, to New Guinea and Ceram.

Gynacantha sp.

Material examined :

1 ♀, Misol Island (Lilinta), 26.II.1929.

I am unable to place this specimen in the absence of the male. In the colouring of the wings, the broad diffuse burnt-brown fascia extending from the node to pterostigma of forewings, and the yellowish brown at the extreme bases of all wings, the species resembles *Platycantha dirupta*, but its venation is not that of a *Platycantha*. Its body colouring closely resembles that of *G. kirbyi* and I think it very probable that it belongs to that species.

FEMALE : Abdomen 54 mm. Hindwing 52 mm.

HEAD : Labrum and face olivaceous brown, the frons with a welldefined black T-shaped marking on its upper surface, which is bright ochreous on each side of the stem of the T. Eyes very broadly confluent, olivaceous green; occiput very small, yellow.

Thorax dark olivaceous brown, darkest on the dorsum, and with four small blackish spots on each side in a similar situation to those found on *G. kirbyi*. Legs reddish brown.

Wings hyaline with the brownish fascia on forewings mentioned above; nodal index : 34-35 antenodals and 26-28 postnodals in forewings, 25-26 antenodals and 30-32 postnodals in the hind; 17-18 cells in the anal loop; 7 to 10 cells in the triangles; hypertriangles traversed 9 to 10 times; 9 to 10 nervures traversing

the basal space in all wings; 5 to 6 rows of cells between *Rs* and *Rspl*; pterostigma reddish brown, covering 4 to 5 cells; membrane white.

Abdomen reddish brown changing to blackish on dorsum and marked as follows : segment 2 with a fine middorsal yellow line, a short transverse streak of the same colour basad the jugal suture and a pair of apical yellow lunules; segment 3 to 7 with a fine yellow bordering to the apical side of jugal suture and a pair of apical yellow lunules as on segment 2; markings on remaining segments obscure.

Anal appendages fractured off short (due to autotomy during oviposition); vulvar scale forked, dark brown.

The marking of the frons and abdomen and the four spots on each side of thorax appear to place this specimen as *G. kirbyi* but the nodal index is higher and the colouring of the wings varies. The locality is also a new one but not incompatible with the distribution of *G. kirbyi*.

Genus PLATYCANTHA.

Platycantha dirupta KARSCH.

Triacanthagyna dirupta KARSCH. (Ent. Nachr., 15, p. 236 [1889].)

Gynacantha dirupta KIRBY. (Cat. Odon., p. 94 [1890]. — KARSCH, Ent. Nachr., 17, p. 284 [1891]; Abh. Sencken., XXV, p. 213 [1900].)

Platacantha dirupta MARTIN. (Cat. Coll. Selys, Aeschn., p. 155 [1900], fig. 154 and 155.)

Platacantha foersteri MARTIN. (Cat. Coll. Selys, Aesch., p. 154 [1909].)

Material received :

1 ♂, S. Manoembai (Aroe Isl.), 25.III.1929.

The specimen, which is in a rather tattered state, does not differ from type; the wings are deeply enfumed, this forming a regular net-work or reticulation corresponding to the neuration of the wings. The body and abdomen have darkened from decomposition so that no markings are discernible.

The species has been reported from Aroe island by Dr. Ris and has also been taken at Kei, Celebes, Batjan, Sula and Bivak islands and Cape York.

FAMILY GOMPHIDAE.

SUBFAMILY GOMPHINAE.

Genus ONYCHOGOMPHUS.

Onychogomphus geometricus SELYS.

Onychogomphus geomerticus SELYS. (Bull. Acad. Belg. [2], XXI, p. 31 [1854]; *Ibid.*, XXVIII, p. 172 [1869]; Mon. Gomph., p. 20 [1857], Add. Syn. Gomph., 2me, p. 9 [1869]. — WILLIAMSON, Proc. U. S. Nat. Mus., XXXIII, pp. 309 and 311 [1907]. —

LAIDLAW, Rec. Ind. Mus., Vol. XXIV, p. 406 [1922]. — LIEFTINCK, Tijdschr. v. Ent., LXXII, fig. 23, 24, pp. 131-133 [1929].)

Material received :

1 ♂, 1 ♀, Takengon Atjeh (Sumatra), 18.IV.1929. Evidently taken *in copula*.

The two specimens, which cannot be considered more than a local race, differ in a few respects from the type; the male as follows.

Upper surface of frons almost entirely yellow, only a fine median black line at the bottom of the sulcus; anteclypeus entirely yellow, no yellow spot behind occiput.

Sides of thorax with the yellow predominating, so much so, that the black is present merely as a narrow black stripe on each suture! Inner surface of anterior femora broadly yellow. Wings with 11 postnodal nervures and 15 to 16 antenodal in the fore.

ABDOMEN : The basal annules on segments 3 to 7 differing in breadth, that on segment 7 of even width throughout and occupying not quite half the length of segment, on segments 3 to 6 occupying rather less than one-fourth the length of segments and deeply indented by the black on middorsum; segments 3 and 4 with large oval median dorsal yellow spots, 5 with a small one and 6 with a mere vestige of same.

Anal appendages exactly as for type except for the colouring, which is entirely black for the inferior and black on the dorsum of the apical half of superiors.

FEMALE : Head and thorax similar to the male described above. Abdomen differs as follows : the sides of segments 2 and 1 broadly yellow, the dorsal stripe tapering evenly from segment 1 to apex of segment 2; the basal annules on segments 3 and 4 just divided by the invading black on middorsal crest and nearly so on segment 5 to 7 where the annule is only slightly more than one-fourth the length of segment; the oval spot on dorsum of segment 5 very small and entirely absent on 6; segment 8 differing from type by having no yellow markings and 10 also is entirely black. Anal appendages bright pale yellow, slightly longer than segment 10 which is very short. Vulvar scale similar to type.

This species has so far only been reported from Java; the pair described above (from Sumatra) differ only by the broader yellow markings on sides of thorax and by the markings on abdomen. The genitalia of both sexes and the anal appendages are identical with the type and so these specimens cannot be considered of more than racial value.

Mr. Lieftinck remarks that there may be considerable variation in this species judging from a study of Java material; in the male described above, it is to be noted that there are 4 cells in the anal triangle of one wing and 3 in that of the other.

FAMILY LIBELLULIDAE.

SUBFAMILY CORDULIINAE.

Genus PROCORDULIA.

***Procordulia leopoldi* sp. nov.**

Fig. 3, a, b.

Material received :

1 ♂, Angi Gita (New Guinea), 10.III.1929. In rather teneral stage.

MALE : Abdomen 35 mm. Hindwing 32 mm.

HEAD : Labium, labrum and face dull reddish brown; frons above metallic

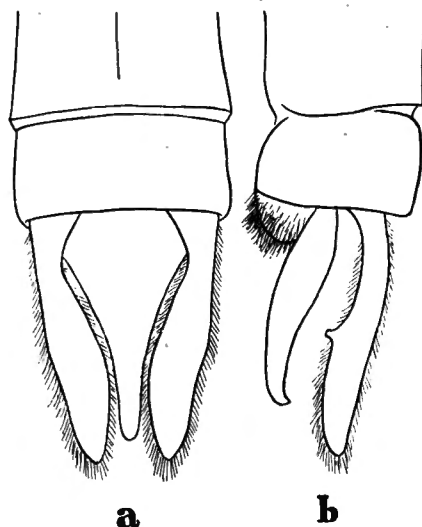


FIG. 3.

a. Anal appendages of *Procordulia leopoldi* sp. nov., ♂, seen from above;
b. The same viewed from the left side.

green or purplish blue according to angle of view; eyes probably green during life, now brown.

Thorax dull reddish brown with the dorsum and two broad lateral fasciae metallic green. The whole thorax coated with a fine short downy brownish hair. Legs dark reddish brown.

Wings hyaline, the extreme bases of all amber tinted; pterostigma ochreous, short, covering three-quarters of a cell, distal end only oblique; 9 to 10 antenodal nervures and 5 postnodals in forewings, 6 antenodal and 7 postnodal nervures in the hind; membrane large, brownish black; 16 to 17 cells in the anal loop which is markedly clubbed at the end.

Abdomen dull metallic green fading to dark brownish black on the end segments. (Probably brilliant metallic green in the adult.)

Anal appendages black; superiors, seen from above, show a marked constriction at the base and then broaden out considerably as far as the middle from which point they gradually taper to a moderately blunt point; seen in profile they are shaped somewhat like the blade of a kukri and present a ventral tubercle just distad the middle of appendage; inferior nearly as long as superiors (which are more than twice the length of segment 10), triangular, tapering to the apex which curves gently up and ends in a minute point.

This new species differs notably from all others by the presence of the ventral tubercle or spine on the superior appendages. The angulation of the hindwings places it in genus *Procordulia*.

SUBFAMILY LIBELLULINAE.

Genus PROTORTHEMIS KIRBY.

Protorthemis coronata (BRAUER).

Libellula coronata BRAUER. (Verh. Zool. Bot. Ges. Wien, XVI, p. 565 [1866]; *Ibid.*, 17, p. 288 [1867].)

Orthemis coronata BRAUER. (Verh. Zool. Bot. Ges. Wien, XVII, p. 729 [1868]. — SELYS, Mitt. Mus. Dresden, p. 294 [1878]; Ann. Mus. Civ. Genov., XIV, p. 290 [1879].)

Protorthemis coronata KIRBY. (Trans. Zool. Soc. Lond., XII, p. 290 [1889]; Cat. Odon., p. 30 [1890]. — RIS, Archiv. für Natur., Bd. I, p. 180 [1900]. — KRUGER, Stett. Ent. Zeit., 63, p. 163 [1902]. — RIS, Cat. Coll. Selys, Libellulinae, pp. 148, 149 [1909].)

Protorthemis wahnesi FÖRSTER. (Ann. Soc. Ent. Belg., XLI, p. 39 [1897]; Termestr., fuz. 21, p. 286 [1898]. — KRUGER, Stett. Ent. Zeit., LXIII, p. 163 [1902].)

Pseudorthemis coronata and *wahnesi* FÖRSTER. (Wien. Ent. Zeitg., XVII, pp. 170-173 [1899].)

Material received :

2 ♂♂, Forest between Lomira and Lake Kamakahwalla (New Guinea), 1 ♀, Kamakahwalla lake (New Guinea), all taken on 19.III.1929.

All three specimens are typical of Brauer's description. In the males, the brown apical marking of wings extends just up to distal end of pterostigma, and in the female to one cell proximal of the inner end of pterostigma, the inner margin of the marking here being irregularly zigzagged or crenate. The blood-red colour of the abdomen is well preserved, segments 7 to 10 being black however in the male, and the apical end of 7, and 8 to 10 in the female. There is but 1 Cuq to all wings in the females, and one of the males, but 2 in the hindwings of the other male; triangles traversed twice in the forewings of one

male and on one side in the female, otherwise only once; the only accessory nervures to the bridge are present in the wings of one side in one male.

This magnificent insect has been reported from Ceram, Waigou, New Guinea, New Ireland, Roon, New Britannia, Stephansort and Bongu.

Genus DIPLACINA SELYS.

Diplacina phoebe RIS.

Diplacina smaragdina RIS. (Nova Guinea, IX, Zool., p. 507, fig. 27 [1913].)

Diplacina phoebe RIS. (Cat. Coll. Selys, Libellulinae, pp. 1060, 1061 [1909].)

Material received :

1 ♀, Siwi (New Guinea), 7.III.1929.

Differs from type by the labium, labrum and face an uniform olivaceous brown, the only yellow markings being those on the side of the frons which is bright metallic blue above. The thorax is rather metallic blue than green but this may be due to slight tenerality. Segment 6, in addition to 3 to 5, with a median lateral oval yellow spot on each side; segment 7 has a large ovoid yellow middorsal basal spot extending for half the length of segment; the venation similar except for only 9 antenodals in hindwings.

The species has been reported from Ceram as well as from New Guinea.

Genus LATHRECISTA KIRBY.

Lathrecista asiatica asiatica (FABRICIUS).

Libellula asiatica F. (Ent. Syst. Suppl., p. 283 [1798].)

Orthetrum asiaticum KIRBY. (Cat. Odon., p. 36 [1890].)

Lathrecista asiatica KARSCH. (Berlin, Ent. Ztschr., XXXIII, p. 369 [1890].)

Libellula pectoralis BRAUER. (Zool. Bot. Ges. Wien, XVII, p. 19 [1867]; *Ibid.*, p. 288 [1867].)

Orthemis pectoralis BRAUER. (Zool. Bot. Ges. Wien, XVIII, p. 729 [1868].)

Agrionoptera pectoralis SELYS. (Mitt. Mus. Dresden, p. 294 [1878]; Ann. Mus. Civ. Genov., XIV, p. 300 [1879]; Ann. Soc. Espan., XI [p. 10 sep] [1882]. — KIRBY, Ann. Mag. Nat. Hist. [5], XIII, p. 454 [1884]. — SELYS, Ann. Soc. Espan., XX, p. 211 [1891].)

Lathrecista pectoralis KIRBY. (Trans. Zool. Soc. Lond., XII, p. 211 [1891]; Cat. Odon., p. 30 [1890]. — KARSCH, Berlin Ent. Zts., XXXIII, p. 371 [1890].)

Agrionoptera simulans SELYS. (Ann. Mus. Civ. Genov., XIV, p. 300 [1879].)

Lathrecista simulans SELYS. (Ann. Mus. Civ. Genov., XXVII, p. 462 [1889]. — KARSCH, Berlin Ent. Ztschr., XXXIII, p. 371 [1890]. — KIRBY, Cat. Odon., p. 30 [1890]. — SELYS, Ann. Mus. Civ. Genov., XXX, p. 458 [1891]. — KIRBY, Linn. Soc. Journ.

- Zool., XXIV, p. 553 [1893]. — LAIDLAW, Proc. Zool. Soc. Lond., p. 68 [1902]. — MARTIN, Mission Pavie [p. 6 sep.] [1904].)
- Lathrecista asiatica simulans* KARSCH. (Ent. Nachr., XVII, p. 46 [1891]. — KRUGER, Stett. Ent. Zeit., LXIII, p. 109 [1902].)
- Lathrecista terminalis* KIRBY. (Trans. Zool. Soc. Lond., XII, p. 335 [1889]; Cat. Odon., p. 30 [1890]. — LAID., Proc. Zool. Soc. Lond., p. 68 [1902].)
- Lathrecista pectoralis* var. *interposita* FÖRSTER. (Termeztr., XXI, p. 287, tab. 13, fig. 5 [1898].)
- Lathrecista asiatica asiatica* RIS. (Cat. Coll. Selys, Libellulinae, pp. 130-132 and 1067, fig. 95-97 [1909]. — FRASER, Bom. Nat. Hist. Journ., Vol. XXVI, pp. 147-149 [1918]; *Ibid.*, Vol. XXIX, p. 56 [1923]; Rec. Ind. Mus., Vol. XXVI, pp. 426, 431 [1924]; Trans. Ent. Soc. Lond., pp. 430, 436 [1924].)

Material received :

- 1 ♂, Forest between Lomira and Lake Kamakahwalla (New Guinea), 19.III.1929.

The single specimen has the dorsum and sides of thorax thinly pruinose, as well as the two first segments of abdomen, the following as far as segment 8 being bright blood red. There is a single supplementary nervure to the bridge of the left hindwing. The apices of wings are but faintly enfumed and only at the extreme margin. The markings on the side of thorax show through the thin coating of pruinescence. Abdomen 32 mm. Hindwing 35 mm.; 14 $\frac{1}{2}$ -15 $\frac{1}{2}$ antenodals.

The species is widely distributed from Western India and Ceylon, throughout southern Asia, Borneo, Philippines as far as Tonga, Viti and Samoa in the Pacific, although plentiful nowhere.

Genus ORTHETRUM NEWMAN.

Orthetrum sabina DRURY.

- Libellula sabina* DRURY. (III, Exot. Ins., I, tab. 48, fig. 4 [1770], pp. 114-115. — BURM., Handb. Ent., 2, p. 857 [1839]. — RAMBUR., Ins. Névropt., p. 47 [1842]. — HAGEN, Zool. Bot. Ges. Wien, VIII, p. 480 [1858]; Stett. Ent. Zeit., XXVIII, p. 89 [1867]. — BR., Zool. Bot. Ges. Wien, XVII, p. 505 [1867].)
- Leptemis sabina* BRAUER. (Novara, p. 104 [1866]; Zool. Bot. Ges. Wien, XVII, p. 289 [1867]; *Ibid.*, XVII, p. 724 [1868]. — SELYS, Ann. Mus. Dresden, p. 294 [1878]; Ann. Mus. Civ. Genov., XIV, pp. 289, 305 [1879]. — ALBARDA, Veths Mid. Sumatra, Neur., p. 3 [1881]. — SELYS, Ann. Soc. Espan., XI, p. 8, sep. [1882]. — KIRBY, Ann. Mag. Nat. Hist. [5], XIII, p. 455 [1884]; Proc. Zool. Soc. Lond., p. 325 [1886]. — SELYS, Ann. Soc. Ent. Belg., XXXI, p. 21 [1887]; Ann. Mus. Civ. Genov., XXVII, p. 455 [1889]; Ann. Soc. Espan., XX, p. 211 [1891].)
- Orthetrum sabina* KIRBY. (Trans. Zool. Soc. Lond., XII, p. 302, tab. 55, fig. 5 [1889]; Cat. Odon., p. 35 [1890]. — KARSCH, Ent. Nachr., XVII, p. 46 [1891]. — KIRBY, Linn. Soc. Journ. Zool., XXIV, p. 554 [1893]; Ann. Mag. Nat. Hist. [6], XIV, p. 19 [1894]. — FÖRSTER, Termes. Fuz., XXI, p. 279 [1898]. — CALVERT, Trans. Amer. Ent. Soc.,

XXV, p. 82 [1898]; Proc. Acad. Phil., p. 239 [1899]. — KARSCH, Mus. Sencken., XXV, p. 220 [1900]. — MART., Mém. Soc. Zool. France, XIX, p. 224 [1901]. — LAID., Proc. Zool. Soc. Lond., p. 68 [1902]. — KRUGER, Stett. Ent. Zeit., p. 151, LXIII [1902]. — MART., Mission Pavie, sep. p. 7 [1904]. — MORTON, Trans. Ent. Soc. Lond., p. 304 [1907]. — FRASER, Bom. Journ. Nat. Hist. Soc., Vol. XXIX, p. 53 [1923]; Rec. Ind. Mus., Vol. XXVI, p. 432 [1924]; Bom. Journ. Hist. Soc., Vol. XXVI, pp. 167, 168 [1918]; *Ibid.*, Vol. XXVII, p. 541 [1921]; Treubia, Vol. VIII, Liv. 3-4, p. 467 [1926]; Journ. Siam. Soc. Nat. Hist. Suppl., Vol. VII, pp. 83-84 [1927]. — MORTON, Ent. Month. Mag. [3], Vol. V, p. 183 [1919]; Ann. Mag. Nat. Hist [9], Vol. V, p. 298 [1920].)

Libella sabina SELYS. (Ann. Mus. Civ. Genov., XXX, p. 462 [1891].)

Orthetrum sabinum RIS. (Archiv. f. Natur., Bd. I, p. 184 [1900]. — NEEDHAM, Zool. Sinica, Ser. A, Vol. XI [1], pp. 130-131 [1930].)

Libellula gibba F. (Suppl. Ent. Syst. p. 284 [1798]. — HAGEN, Stett. Ent. Zeit., 5, p. 259 [1845].)

Libellula leptura BRAUER. (Zool. Bot. Ges. Wien, XVII, p. 724 [1868].)

Orthetrum leptura KIRBY. (Cat. Odon., p. 36 [1890].)

Orthetrum lepturum NEEDHAM. (Proc. U. S. Nat. Mus., XXVII, p. 703, tab. 41, fig. 4, 5 [1904].)

Libellula ampullacea SCHNEID. (Stett. Ent. Zeit., VI, p. 110 [1845]. — SELYS, HAGEN, Revue des Odon., p. 288 [1850].)

Leptemis divisa SELYS. (Mitt. Mus. Dresden, pp. 294, 302 [1878].)

Orthetrum divisum KIRBY. (Cat. Odon., p. 36 [1890].)

Material received :

2 ♂♂, 1 ♀, Samarinda (Borneo), 9.II.1929; 1 ♂, Aer Poeti (Sumatra), 24.IV.1929; 1 ♂, Singaradja (Bali), 22.I.1929; 1 ♀, Mataram (Lombok), 28.I.1929; 1 ♀, Den Pasar (Bali), 24.I.1929. (Most specimens with the abdomen defective.)

The species has a wide distribution, extending from North Africa, Somaliland and Mesopotamia to China, the Philippines, Viti and Australia through South Asia. It shows little or no variation so that its colouring may account for the dominant position it occupies in the order. It is the shark of the dragonfly world, the author has actually seen it devouring its own species and, on one lake in India, its sole food seemed to be *Ischnura senegalensis*.

***Orthetrum pruinatum neglectum* (RAMBUR).**

Libellula neglecta RAMB. (Ins. Névropt., p. 86 [1842].)

Libella neglecta SELYS. (Mitt. Mus. Dresden, p. 314 [1878].)

Orthetrum neglectum KIRBY. (Cat. Odon., p. 182 [1890]. — MARTIN, Mission Pavie, sep. p. 7 [1904]. — MORTON, Trans. Ent. Soc. Lond., p. 305 [1907].)

Libellula petalura BRAUER. (Zool. Bot. Ges. Wien, XV, p. 506 [1865]; Novara, p. 96 [1866].)

Libella petalura BRAUER. (Zool. Bot. Ges. Wien, XVII, p. 732 [1868].)

Orthetrum petalura KIRBY. (Cat. Odon., p. 39 [1890].)

Libellula pruinosa BRAUER. (Zool. Bot. Ges. Wien, XV, p. 1013 [1865].)

Orthetrum pruinsum KIRBY. (Proc. Zool. Soc. Lond., p. 327 [1886]; *Ibid.*, p. 203 [1891]; Linn. Soc. Journ. Zool., XXIV, p. 554 [1893]; Ann. Mag. Nat. Hist. [6], XIV, p. 112 [1894]. — LAIDLAW, Proc. Zool. Soc. Lond., I, p. 68 [1902]. — FRASER, Journ. Bom. Nat. Hist. Soc., Vol. XXIX, p. 53 [1923].)

Libella pruinosa clelia SELYS. (Ann. Mus. Civ. Genov., p. 461 [1891].)

Orthetrum pruinsum ceylanicum FÖRSTER. (Ann. Mus. Hungar., p. 541 [1903].)

Orthetrum pruinsum neglectum RIS. (Cat. Coll. Selys, Libellulinae, pp. 239, 240 [1909]. — FRASER, Bom. Journ. Nat. Hist. Soc., Vol. XXVI, pp. 170, 171 [1918]; *Ibid.*, Vol. XXVII, p. 541 [1921]; Rec. Ind. Mus., Vol. XXVI, p. 432 [1924].)

Material received :

1 ♂, Kandy (Ceylan), without date.

The specimen is not fully adult, the pruinescence has not yet developed; the basal brown marking in hindwing extends nearly to the proximal antenodal and to the Cuq, but falls well short of the anal angle of the wing.

The species extends from India to South China and is nearly related to *O. pruinsum pruinsum* and *O. pruinsum clelia*.

Orthetrum pruinsum clelia SELYS.

Libella clelia SELYS. (Mitt. Mus. Dresden, pp. 294, 313 [1878]; Ann. Soc. Espan. Hist. Nst., II [p. II, sep.] [1882].)

Orthetrum clelia KIRBY. (Cat. Odon., p. 38 [1890]. — RIS, Archiv. für Natur., I, p. 185 [1900]. — KRUGER, Stett. ent. Zeit., LXII, pp. 146, 148 [1902].)

Orthetrum schneideri FÖRSTER. (Ann. Mus. Hungar., p. 541 [1903].)

Orthetrum pruinsum clelia RIS. (Cat. Coll. Selys, Libellulinae, p. 242 [1909]. — LAIDLAW, Proc. Zool. Soc. Lond., p. 321 [1920].)

Material received :

1 ♀, Virgin forest between Paloe and Koelawi (Celebes), 4.II.1929.

The differences between the females of the three subspecies are not as pronounced as between the males and if it were not for the locality in which the specimen was taken, one might easily mistake it for the female of *O. pruinsum neglectum*. The face is dark brown rather than black and the whole abdomen is an uniform olivaceous brown. The basal marking of the hindwing is as extensive but paler than in the species mentioned above. Nodal index : 17 to 18 antenodals and 12 to 13 postnodals in forewings, 13 to 14 antenodals and 12 to 13 postnodals in hindwings; hypertrigones in forewings traversed 2 or 3 times, once in the hind. The wings are palely enfumed brown.

The subspecies extends from Sumatra to the Philippines.

***Orthetrum testaceum testaceum* BURMEISTER.**

Libellula testacea BURM. (Handb. Ent., 2, p. 859 [1839].)

Erythemis testacea BRAUER. (Novara, p. 104 [1866].)

Libella testacea BRAUER. (Zool. Bot. Ges. Wien, XVII, p. 732 [1868]. — ALBARDA, Veths Midd. Sumatra, Neur., p. 4 [1881]. — SELYS, Ann. Soc. Espan. Nat. Hist., II [p. 12 sep.] [1882]; Ann. Mus. Civ. Genov., XXVII, p. 463 [1889]; *Ibid.*, XXX, p. 461 [1891]; Ann. Soc. Espan., XX, p. 211 [1891].)

Orthetrum testaceum KIRBY. (Cat. Odon., p. 39 [1890]. — KARSCH, Ent. Nach., 17, p. 46 [1891]. — CALVERT, Trans. Amer. Ent. Soc., XXV, p. 89 [1898]. — KIRBY, Ann. Mag. Nat. Hist. [7], V, p. 534 [1900]. — RIS, Arch. für Nat., I, p. 186, tab. 9, fig. 1 [1900]; KARSCH, Mus. Sencken., XXV, p. 220 [1900]. — KRUG., Stett. Ent. Zeit., LXIII, p. 142 [1902]. — LAID., Proc. Zool. Soc. Lond., I, p. 68 [1902]. — MARTIN, Mission Pavie [p. 7 sep.] [1904]. — LAID., *Loc. cit.*, p. 26 [1915]; *Ibid.*, p. 322 [1920].)

Orthetrum testaceum testaceum RIS. (Cat. Coll. Selys, Libellulinae, pp. 235, 236 [1909].)

Material received :

- 1 ♂, Tandjong-Karang (Sumatra), 12.IV.1929; 1 ♂, Aer Poeti (Sumatra), 24.IV.1929. (The former specimen defective.)

In the Sumatra male, the basal marking extends from costa to anal angle and outwards, in the forewing to halfway to the basal antenodal nervure, in the hindwing nearly to the 2nd antenodal, arc and triangle. In the New Guinea specimen, the marking is slightly more limited than this; in both, it is a bright golden yellow. All triangles and hypertriangles are traversed once in the New Guinea form, but the hypertriangle in the forewing of the Sumatra specimen is traversed twice and that of the hindwing entirely free.

The species extends from Burma to the Philippines, Borneo and Java and Sumatra to the south.

***Orthetrum chrysis* SELYS.**

Libella testacea race *chrysis* SELYS. (Ann. Mus. Civ. Genov., XXX, p. 462 [1891].)

Orthetrum chrysis RIS. (Archiv. für Natur., Bd. I, p. 186, tab. 9, fig. 2 [1900]. — KRUGER, Stett. Ent. Zeit., XLIII, p. 144 [1902]. — RIS, Cat. Coll. Selys, Libellulinae, p. 237 [1909]. — LAID., Proc. Zool. Soc. Lond., p. 322 [1920]. — FRASER, Journ. Bom. Nat. Hist. Soc., Vol. XXIX, p. 53 [1923].)

Material received :

- 1 ♂, Tandjong Slamati (Sumatra), 5.V.1929.

This species closely resembles the last but is easily distinguished from it by the tuft of stiff hairs on the lamina of the genitalia. The two species are undoubtedly very closely related and it is of interest to note here that it was

taken in company with its near relative. The specimen does not differ in any way from type.

It has been reported from Burma, Malaysia, Borneo, Celebes, Aroe and Ceylon, but I think the last locality open to the strongest doubt.

***Orthetrum glaucum* (BRAUER).**

1 ♂, Kandy (Ceylon).

Genus **TYRIOBAPTA** KIRBY.

***Tyriobapta torrida* KIRBY.**

Tyriobapta torrida KIRBY. (Trans. Zool. Soc. Lond., XII, p. 338, tab. 54, fig. 5, 6 [1889]. — SELYS, Ann. Mus. Civ. Genov., XXVII, p. 464 [1889]. — KIRBY, Cat. Odon., p. 32 [1890]. — KARSCH, Mitt. Mus. Sencken., XXV, p. 221 [1900]. — LAIDLAW, Proc. Zool. Soc. Lond., I, p. 68 [1902]. — KRUGER, Stett. Ent. Zeit., XLIII, p. 164 [1902]. — RIS, Cat. Coll. Selys, Libellulinae, pp. 355-357 [1909]. — LAID., Proc. Zool. Soc. Lond., p. 322 [1920].)

Material received :

1 ♂, Tandjong-Slamat (Sumatra), 5.V.1929.

The species extends through Malaysia to Borneo and Sumatra. The single specimen is fully adult with the broad basal marking fully developed and with a beautiful purple or green reflex according to the angle from which viewed, resembling rather closely in this respect *Rhyothemis triangularis*, so much so that it would be difficult to distinguish them from one another on the wing. The basal marking extends to within 2 cells of the node in the hindwing and has a rather ragged margin; in the forewing, it merely invades the anal angle, cubital space and the hinder margin of wing very narrowly to the level of the proximal end of bridge.

Genus **DIPLACODES** KIRBY.

***Diplacodes trivialis* (RAMBUR).**

Libellula trivialis RAMB. (Ins. Névropt., p. 115 [1842]. — HAGEN, Zool. Bot. Ges. Wien, VIII, p. 480 [1858]. — SELYS, Ann. Soc. Ent. Belg., XII, p. 95 [1869].)

Diplax trivialis BRAUER, (Novara, p. 104 [1866]; Zool. Bot. Ges. Wien, p. 289 [1867]; *Ibid.*, XVII, p. 721 [1868]; *Ibid.*, XIX, p. 9 [1869]. — SELYS, Mitt. Mus. Dresden, p. 294 [1878]. — ALBARA, Veths Midd. Sumatra, Neur., p. 3 [1881]. — SELYS, Ann. Soc. Espan. Hist. Nat., II [p. 8 sep.] [1882]; Ann. Soc. Ent. Belg., XXVII, p. 95 [1883]; *Ibid.*, XXVIII, p. 32 [1884]; Compte Rendu Soc. Ent. Belg., VII, 88 [sep.]; Ann. Mus. Civ. Genov., XXVII, p. 450 [1889]; Ann. Soc. Espan. Hist., XX, p. 211 [1891].)

- Trithemis trivialis* KIRBY. (Trans. Zool. Soc. Lond., XII, p. 278 [1889]; Cat. Odon., p. 18 [1890]. — SELYS, Ann. Mus. Civ. Genov., XXX, p. 467 [1891]. — KIRBY, Proc. Zool. Soc. Lond., p. 203 [1891]; Linn. Soc. Journ. Zool., XXIV, p. 550 [1893]; Ann. Mag. Nat. Hist. [7], 5, p. 531 [1900]. — LAIDLAW, Proc. Zool. Soc. Lond., I, p. 66 [1902].)
- Diplacodes trivialis* KARSCH. (Ent. Nach., XVII, p. 246 [1891]. — CALVERT, Proc. Acad. Phila., p. 146 [1898]. — KARSCH, Mitt. Mus. Senckenberg., 25, p. 219 [1900]. — RIS, Archiv. für Natur., I, p. 188 [1900]. — MARTIN, Mém. Soc. Zool. France, XIX, p. 224 [1901]. — KRUGER, Stett. Ent. Zeit., LXII, p. 126 [1902]. — MARTIN, Mission Pavie [p. 7 sep.] [1904]. — NEEDHAM, Proc. U. S. Nat. Mus., Vol. XXVII, p. 708, tab. 41, fig. 8-9; tab. 44, fig. 2 [1904]. — KIRBY, Ann. Mag. Nat. Hist. [7], XV, p. 271 [1905]. — TILLYARD, Proc. Linn. Soc. N. S. Wales, XXXI, p. 484 [1906]. — MARTIN, Bull. Soc. Ent. Ital., XL, p. 197 [1909]. — LAID., Proc. Zool. Soc. Lond., p. 323 [1920]. — FRASER, Rec. Ind. Mus., Vol. XXIV, p. 304 [1922]; Journ. Bom. Nat. Hist. Soc., Vol. XXIX, p. 54 [1923]. — LAID., Spolia Zeylanica, Vol. XII, p. 345 [1924]. — FRAS., Rec. Ind. Mus., Vol. XXVI, p. 434 [1924].)

Material received :

- 1 ♂, Tandjong Karang (Sumatra), 12.IV.1929; 4 ♀♀, Mataram (Lombok), 28.I.1929 (all defective); 1 ♀, Harau Kloof (Sumatra), 23.IV.1929; 1 ♂, 1 ♀, Singaradja (Bali), 22.I.1929.

The species is widely distributed throughout southern Asia, from India, to Japan, the Philippines, Borneo, New Guinea and Australia. Other localities and districts are Java, Sumatra, Seychelles and North Africa. It is a dominant species and very common wherever it occurs. Old specimens lose the yellow markings and, after becoming quite black, take on a thin bluish-white pruinescence. Little or no variation is seen except for those due to age.

Genus CROCOTHEMIS (BRAUER).

Crocothemis servilia (DRURY).

Libellula servilia DRURY. (Ill. Exot. Ins., pl. 47, fig. 6, pp. 112-113 [1770]. — RAMB., Ins. Névro., p. 80 [1842].)

Erythemis servilia BRAUER. (Novara, p. 104 [1866].)

Crocothemis servilia BRAUER. (Zool. Bot. Ges. Wien, XVII, p. 737 [1868]. — ALBARDA, Veths Midd. Sumatra, Neur., p. 4 [1881]. — SELYS, Ann. Soc. Espan. Hist. Nat., II [p. 14 sep.] [1882]; Ann. Soc. Ent. Belg., XXVII, p. 105 [1883]; Compte Rendu Soc. Ent. Belg. [7.VII.1888]; Ann. Mus. Civ. Genov., XXVII, p. 468 [1889]. — KANDY, Cat. Odon., p. 21 [1890]. — SELYS, Ann. Mus. Civ. Genov., XXX, p. 468 [1891]. — KARSCH, Ent. Nach., XVII, p. 42 [1891]. — KIRBY, Ann. Mag. Nat. Hist. [6], XIV, p. 18 [1894]. — MACHL., *Ibid.* [6], XIII, p. 432 [1894]; *Ibid.*, [6], XVII, p. 366 [1896]. KIRBY, *Ibid.* [7], V, p. 532 [1900]. — MART., Mém. Soc. Ent. France, XIX, p. 224 [1901]. — LAIDLAW, Proc. Zool. Soc. Lond., I, p. 67 [1902]. — KRUGER, Stett. Ent. Zeit., XLIII, p. 117 [1902]. — MART., Mission Pavie [p. 5 sep.] [1904]. — NEEDHAM, Proc. U. S. Nat. Mus., Vol. XXVII, p. 702 [1904]. — MORTON, Trans. Ent. Soc. Lond., p. 304 [1907]. — LAID., Proc. Zool. Soc. Lond., p. 323 [1920]; Rec. Ind. Mus.,

- Vol. VIII, p. 337 [1914]. — FRASER, Journ. Bom. Nat. Hist. Soc., Vol. XIX, p. 56 [1923]; Rec. Ind. Mus., Vol. XXIV, p. 305 [1922]; *Ibid.*, Vol. XXVI, p. 437 [1924]. — LAID., Spolia Zeylanica, Vol. XII, p. 346 [1924].)
- Libellula ferruginea* F. (Ent. Syst., 2, p. 380 [1793]. — BURM., Handb. Ent., 2, p. 858 [1839]. — HAGEN, Stett. Ent. Zeit., 5, p. 259 [1845]. — CALVERT, Trans. Amer. Ent. Soc., XXV, p. 88 [1898].)
- Libellula soror* RAMB. (Ins. Névrope., p. 82 [1842]. — HAGEN, Zool. Bot. Wien, 8, p. 480 [1858].)
- Crocothemis soror* KIRBY. (Proc. Zool. Soc. Lond., p. 328 [1886]; Cat. Odon., p. 22 [1890]; Linn. Soc. Journ. Zool., XXIV, p. 551 [1893].)
- Crocothemis reticulata* KIRBY. (Proc. Zool. Soc. Lond., p. 328 [1886]; Cat. Odon., p. 22 [1890].)
- Crocothemis servilia servilia* RIS. (Cat. Coll. Selys, Libellulinae, pp. 539-542 [1909]. — FRASER, Rec. Ind. Mus., Vol. XXIV, p. 305 [1922].)

Material received :

1 ♂, Singaradja (Bali), 22.I.1929.

A widely distributed species and common wherever it occurs. Extends from the West coast of India and Ceylon to China and Japan, and southwards to Java, Sumatra, Borneo and the Celebes.

The present specimen agrees with examples from India and Malacca, the apices of all wings are slightly enfumed and the basal marking of all wings extends about halfway to the basal antenodal and Cuq, its outer border running straight back to border of wing.

Genus NEUROTHEMIS (BRAUER).

Neurothemis palliata palliata (RAMBUR).

- Polyneura palliata* RAMB. (Ins. Névrope., p. 129 [1842].)
- Neurothemis palliata* BRAUER. (Zool. Bot. Ges. Wien, XVII, p. 7 [1867]; *Ibid.*, XVIII, p. 717 [1868]. — SELYS, Mitt. Mus. Dresden, p. 294 [1878]. — KIRBY, Ann. Mag. Nat. Hist. [5], XIII, p. 454 [1884]. — KRUGER, Stett. Ent. Zeit., XLIII, p. 126 [1902]; *Ibid.*, XLIV, p. 264 [1903].)
- Neurothemis fluctuans* var. or race *palliata* SELYS. (Ann. Mus. Civ. Genov., XIV, pp. 295, 323 [1879]; Ann. Soc. Espan. Hist. Nat., II [p. 7 sep.] [1882]; *Ibid.*, XX, p. 211 [1891].)
- Polyneura ramburi* BRAUER. (Zool. Bot. Ges. Wien, XVI, p. 568 [1866].)
- Neurothemis ramburi* BRAUER. (Zool. Bot. Ges. Wien, XVII, p. 289 [1867]. — KRUGER, Stett. Ent. Zeit., XLIV, p. 271 [1903].)
- Neurothemis palliata* race *ramburi* BRAUER. (Zool. Bot. Ges. Wien, XVII, p. 7 [1867]; *Ibid.*, XVIII, p. 717 [1868]. — SELYS, Mitt. Mus. Dresden, p. 294 [1878].)
- Neurothemis fluctuans* var. or race *ramburi* SELYS. (Ann. Mus. Civ. Genov., XIV, pp. 289, 295, 305 [1879]. — KARSCH, Mitt. Mus. Senck., XXV, p. 219 [1900].)

Neurothemis incerta BRAUER. (Zool. Bot. Ges. Wien, XVII, pp. 7, 12 [1867].)

Neurothemis palliata var. *incerta* BRAUER. (Zool. Bot. Ges. Wien, XVIII, p. 717 [1868].)

Untamo apicalis KIRBY. (Trans. Zool. Soc. Lond., XII, pp. 285, 331, pl. 53, fig. 4 [1839].)

Neurothemis palliata und var. *ramburi* RIS. Cat. Coll. Selys, Libellulinae [1909]; Abh. d. Senck. Natur., Bd. XXXIV, pp. 531, 532 [1913]; Nova Guinea, XIII, Zool., p. 126 [1919].)

Material received :

1 ♀, Bantimoerang (Makassar, Celebes), 1.II.1929. (Abdomen defective.)

The species is subject to numerous varieties and with sufficient material it should permit of a series ranging from the most restricted basal marking to those in which it approximates to the pterostigma.

The present specimen has the bases of all wings golden yellow to one or two cells distad the node, from whence it passes back in a gentle convexity to the hinder border but leaving a narrow hyaline interval to as far as the anal angle in the hindwings. This coloured area presents several darker, burnt-brown markings as follows, a dark streak in *Sc* nearly as far as the node, another in *Cu* as far as the triangle but leaving a short hyaline area at base of wings, a broad dark bordering to the whole of the marking with two hyaline streaks running through it at the hinder part of discoidal field and the midrib of anal loop, the inner part of *Br* and the whole of the neuration in the coloured area. The extreme border of the apices of wings are palely enfumed brown. The body and abdominal markings are not different from the type.

The species, with its numerous varieties, ranges from the Celebes to the Philippines. Fruhstorfer mentions Java as a locality but this seems open to grave doubt and is probably the result of wrong labelling.

***Neurothemis disparilis* KIRBY.**

Neurothemis disparilis KIRBY. (Trans. Zool. Soc. Lond., XII, p. 322, pl. 54, fig. 8 [1889].)

SELYS, Ann. Mus. Civ. Genov., XXVII, p. 453 [1889]. — KIRBY, Cat. Odon., p. 8 [1890]. — LAID., Proc. Zool. Soc. Lond., I, p. 66 [1902]. — KRUGER, Stett. Ent. Zeit., XLIV, p. 260 [1903]. — RIS, Cat. Coll. Selys, Libellulinae, pp. 552, 566 [1909]. — LAID., Proc. Zool. Soc. Lond., p. 323 [1920].)

Material received :

1 ♀, Samarinda (Borneo), 9.II.1929.

The single specimen does not differ from type; the species appears to be confined strictly to Borneo.

***Neurothemis fluctuans* (FABRICIUS).**

Libellula fluctuans F. (Ent. Syst., 2, p. 379 [1793]. — BURM., Handb. Ent., 2, p. 853 [1839]. — CALVERT, Trans. Amer. Ent. Soc., XXV, p. 71 [1898].)

Neurothemis fluctuans HAGEN. (Stett. Ent. Zeit., XXX, p. 105 [1869]. — SELYS, Ann. Mus. Civ. Genov., XIV, pp. 290, 295 [1879]. — ALBARDA, Veths Midd. Sumatra, p. 3 [1881]; SELYS, Ann. Mus. Civ. Genov., XXVII, p. 453 [1889]. — *Ibid.*, XXX, p. 446 [1890]. — KIRBY, Cat. Odon., p. 7 [1890]. — KARSCH, Ent. Nach., XVII, p. 45 [1891]; Mitt. Mus. Sencken., XXV, p. 219 [1900]. — LAIDLAW, Proc. Zool. Soc. Lond., I, p. 65 [1902]. — KRUG., Stett. Ent. Zeit., XLIII, p. 125 [1902]; *Ibid.*, XLIV, p. 260 [1903]. — MARTIN, Mission Pavie [p. 5 sep.] [1904]. — RIS, Cat. Coll. Selys, Libellulinae, pp. 552, 566, 569 [1909]. — LAID., Proc. Zool. Soc. Lond., p. 323 [1920]. — FRASER, Journ. Bom. Nat. Soc. Vol. XXIX, p. 55 [1923].)

Polyneura elegans RAMB. (Ins. Névrope., p. 127 [1842].)

Polyneura apicalis BRAUER. (Novara, p. 104 [1866].)

Neurothemis ceylanica BRAUER. (Zool. Bot. Ges. Wien, XVII, p. 11 [1867]. — KIRBY, Journ. Linn. Soc. Zool., XXIV, p. 550 [1893].)

Neurothemis nicobarica BRAUER. (Zool. Bot. Ges. Wien, XVII, p. 12 [1867].)

Neurothemis palliata HAGEN. (Stett. Ent. Zeit., XXX, p. 100 [1869].) (*pars.*)

Material received :

2 ♂♂, Samarinda (Borneo), 8-9.II.1929. (Both specimens headless and with defective abdomen.)

One male is teneral, the marking only palely developed on the wings. In the other, a fully adult specimen, the marking in the hindwing extends as far distad as the proximal end of pterostigma and runs obliquely back for half the breadth of the wing and is then sharply angulated towards the basal angle of wing.

The species is a common one and is distributed from Burma to Borneo. The author has specimens from Mergui, Lower Burma. Southwards it has been taken in Java and Sumatra. Ceylon, as a locality given by Brauer and repeated by Kirby, seems open to strong doubt.

Neurothemis terminata RIS.

Polyneura apicalis RAMB. (Ins. Névrope., p. 127 [1842].)

Neurothemis apicalis HAGEN. (Stett. Ent. Zeit., XXX, p. 103 [1869]. — KRUGER, *Ibid.*, XLIV, p. 283 [1903].)

Neurothemis fluctuans race *apicalis* SELYS. (Ann. Mus. Civ. Genov., XIV, p. 294 [1879]; Ann. Soc. Espan. Hist. Nat., II [p. 8 sep.] [1882]; *Ibid.*, XX, p. 211 [1891]. — KARSCH, Mitt. Mus. Sencken., XXV, p. 219 [1900].)

Neurothemis fluctuans BRAUER. (Zool. Bot. Ges. Wien, XVII, p. 16 [1867]; *Ibid.*, XVIII, p. 717 [1868].)

Neurothemis stigmatizans LAIDLAW. (Proc. Zool. Soc. Lond., I, p. 66 [1902].)

Neurothemis terminata RIS, nov. nom. (Cat. Coll. Selys, Libellulinae, pp. 569, 572 [1909]. — LAID., Proc. Zool. Soc. Lond., p. 323 [1920].)

Material received :

2 ♂♂, Tandjong-Karang (Sumatra), 12.IV.1929, and Samarinda (Borneo), 9.II.1929.

The species extends from Java and Sumatra to Borneo and the Philippines. I cannot find a previous mention of Sumatra as a locality but the species appears to be widely distributed throughout the Sondaic Islands. It is distinguished from other species by the brown markings of wing extending nearly to apex and the free border of same running straight from costa to posterior border of wings.

This is true as far as the specimen from Borneo is concerned but in the male from Sumatra, the border is slightly oblique in the hindwing. The species is very closely related to *N. fluctuans*.

***Neurothemis stigmatizans bramina* (GUÉRIN).**

Libellula bramina GUÉRIN. (Voy. Coquille, Zool., II, 2, p. 194 [1838].)

Neurothemis diplax BRAUER. (Zool. Bot. Ges. Wien, XVII, pp. 18, 289 [1867]; *Ibid.*, XVIII, p. 717 [1868].)

Neurothemis elegans FÖRSTER. (Term. fuz. 21, p. 275 [1898]. — KARSCH, Mitt. Mus. Sencken., XXV, p. 219 [1900].)

Neurothemis stigmatizans elegans VAN DER WIELE. (Nova Guinea, IX, Zool., p. 19 [1907].)

Neurothemis oculata RIS. (Archiv. für Natur., I, p. 178 [1900]. — KRUGER, Stett. Ent. Zeit., XLIV, p. 280 [1903].)

Neurothemis stigmatizans race *b* VAN DER WIELE. (Nova Guinea, 5, Zool., p. 385 [1909].)

Neurothemis stigmatizans bramina RIS. (Cat. Coll. Selys, Libel., p. 574 [1909]; Abh. Sencken., Natur., Bd. XXXIV, pp. 532, 533 [1913].)

Material received :

5 ♂♂, and 5 ♀♀, all from Dobo (Aroe), 26.III.1929.

Of the females all except one specimen are heterochromes. The isochromatic specimen is teneral and in poor condition, otherwise, but for its sexual organs, it would be difficult to distinguish from a male. The basal area, except for the dark streaks in *Sc* and *Cu*, is pale yellow without darker markings, the broad brown border fanned out from it towards the apex and posterior border of wings.

The heterochromatic females agree closely with the figure of the wings given by Dr. Ris (*l. c.*, fig. 337).

The males have the dark marking extending up the middle of the pterostigma in all wings. The very dense reticulation of the base of the wings is pale yellow and appears like a frosting against the darker membrane.

The species appears to be confined to New Guinea, Aroe and the neighbouring islands.

Neurothemis stigmatizans manadensis (BOISDUVAL).

- Libellula manadensis* BOISDUVAL. (Voy. de l'Astrolabe, 2, p. 651 [1835].)
Polyneura manadensis RAMB. (Ins. Névrope., p. 128 [1842].)
Neurothemis manadensis HAGEN. (Stett. Ent. Zeit., XXX, p. 97 [1869]. — KRUGER, *Ibid.*, XLIV, p. 281 [1903].)
Neurothemis stigmatizans, *B. manadensis* KARSCH. (Mitt. Mus. Sencken., XXV, p. 218 [1900].)
Libellula elegans GUÉRIN. (Voy. de la Coquille, Zool., II, 2, p. 194 [1835].)
Neurothemis elegans BRAUER. (Zool. Bot. Ges. Wien, XVII, p. 14 [1867]; *Ibid.*, XVIII, p. 717 [1868].)
Neurothemis incerta BRAUER. (Zool. Bot. Ges. Wien, XVII, p. 12 [1867]; *Ibid.*, XVIII, p. 717 [1868].)
Neurothemis pseudosophronia BRAUER. (*Ibid.*, XVII, pp. 15, 289 [1867].)
Neurothemis innominata BRAUER. (*Ibid.*, XVII, pp. 17, 289 [1867]; *Ibid.*, XVIII, p. 717 [1868].)
Neurothemis oculata SELYS. (Mitt. Mus. Dresden, pp. 294, 302 [1878]; Ann. Mus. Civ. Genov., XIV, p. 289 [1879]. — FÖRSTER, Term. fuz. 21, p. 275 [1898]. — NEEDHAM, Proc. U. S. Nat. Mus., Vol. XXVI, p. 724, fig. 18 [1903].)
Neurothemis unicolor SELYS. (Mitt. Mus. Dresden, pp. 293, 301 [1878]; Ann. Mus. Civ. Genov., XIV, pp. 292, 323 [1879]. — KARSCH, Mitt. Mus. Sencken., XXV, p. 218 [1900].)
Neurothemis stigmatizans KIRBY. (Cat. Odon., p. 7 [1890].)
Neurothemis stigmatizans manadensis RIS. (Cat. Coll. Selys, Libellulinae, pp. 572, 574 [1909].)

Material received :

5 ♂♂, S. Manoembai (Aroe Isl.), 25.III.1929.

All five specimens are fully adult with the dark marking of wings deep reddish brown and extending to within five cells of the pterostigma; all wings have two traversing nervures in the cubital space except one which has three in one hindwing.

The locality, Aroe Islands, is a new record, and it is of interest to note that the species is not included in the list given by Dr. Ris for that island (*Abh. Sencken.*, Bd. XXXIV (1913)); it appears to be confined to the Celebes, Ceram, Ternate, Batjan, Aroe and New Guinea, the first mentioned being its zoo-centre.

Genus **RHYOTHEMIS** HAGEN.**Rhyothemis phyllis phyllis** (SULZGER).

- Libellula phyllis* SULZER. (Abgekürzte Ges. der Ins., p. 169, pl. 24, fig. 2 [1776]. — BURM., Handb. Ent., 2, p. 853 [1839]. — RAMB., Ins. Névrope., p. 42 [1842]. — CALVERT, Trans. Ent. Soc., XXV, p. 70 [1898].)

Celythemis phyllis BRAUER. (Novara, p. 104 [1886].)

Celithemis phyllis BRAUER. (Zool. Bot. Ges. Wien, XVII, p. 288 [1867].)

Rhyothemis phyllis HAGEN. (Stett. Ent. Zeit., XXVIII, p. 232 [1867]. — BRAUER, Zool. Bot. Wien, XVIII, p. 715 [1868]. — ALBARDA, Veths Midden Sumatra, Neur., p. 3 [1881]. — KIRBY, Trans. Zool. Soc. Lond., XII, p. 270 [1889]. — SELYS, Ann. Mus. Civ. Genov., XXVII, p. 450 [1889]. — KIRBY, Cat. Odon., p. 5 [1890]. — SELYS, Ann. Mus. Civ. Genov., XXX, p. 443 [1891]. — KARSCH, Ent. Nach., XVII, p. 45 [1891]. — KIRBY, Linn. Soc. Journ. Zool., XXIV, p. 549 [1894]. — LAIDLAW, Proc. Zool. Soc. Lond., I, p. 65 [1902]. — KRUGER, Stett. Ent. Zeit., XLIII, p. 104 [1902]. — MARTIN, Mission Pavie [p. 4 sep.] [1904]. — NEEDHAM, Proc. U. S. Nat. Mus., Vol. XXVII, p. 700, pl. 44, fig. 1 and 2 [1904]. — RIS, Ann. Soc. Ent. Belg., 55, p. 234 [1911]. — LAIDLAW, Spolia Zeylanica, Vol. XII, p. 350 [1924].)

Rhyothemis phyllis phyllis RIS. (Cat. Coll. Selys, Libellulinae, pp. 938-940 [1909]. — LAIDLAW, Proc. Zool. Soc. Lond., p. 324 [1920]. — FRASER, Journ. Bom. Nat. Hist. Soc., Vol. XIX, p. 55 [1923]; Rec. Ind. Mus., Vol. XXVI, p. 443 [*R. variegata* nec *phyllis*] [1924].)

Material received :

1 ♂, Buitenzorg, Java, without date. End of abdomen missing.

The single specimen does not differ from type; the wing markings are faithfully depicted in the figure given by Dr. Ris in the Cat. Coll. Selys, *l. c.*, fig. 540 (1909).

The species extends from Burma to Borneo through South Asia, and southwards to Java and Sumatra, and exhibits considerable variation as to the basal wing-marking. The habitat Western India given by the author is erroneous, the specimens in fact being isochromatic females of *R. variegata*. Ceylon, given as a habitat by Selys and repeated by Kirby is also an undoubted error.

Genus PANTALA (FABRICIUS).

Pantala flavescens (FABR.).

Libellula flavescens F. (Suppl. Ent. Syst., p. 285 [1798]. — HAGEN, Stett. Ent. Zeit., XVII, pp. 366, 369, 370 [1856]. — SELYS, Hist. Cuba, p. 442 [1857]; Maillard, Réunion, II, K. p. 32 [1862].)

Pantala flavescens RIS. (Cat. Coll. Selys, Libellulinae, pp. 917-920 [1909] [the voluminous list of references given for this species should be referred to in this last publication.]; Ann. S. Afr. Mus., Vol. XVIII, pp. 431, 432 [1918]. — LAIDLAW, Proc. Zool. Soc. Lond., p. 325 [1920]. — FRASER, Rec. Ind. Mus., Vol. XXIV, p. 306 [1922]; Journ. Bom. Nat. Hist. Soc., Vol. XIX, p. 57 [1923]; Rec. Ind. Mus., Vol. XXVI, p. 443 [1924]. — LAID., Spolia Zeylanica, Vol. XII, p. 349 [1924].)

Libellula viridula PAL. DE BEAUV. (Ins. Afr. Amer., p. 69 [1805]. — RAMB., Ins. Névrope., p. 38 [1842]. — SELYS, Revue des Odonates, p. 322 [1850].)

Libellula analis BURM. (Handb. Ent., 2, p. 852 [1839]. — CALVERT, Trans. Amer. Ent. Soc., XXV, p. 69 [1898].)

Libellula terminalis BURM. (Handb., 2, p. 852 [1839]. — CALVERT, Trans. Amer. Ent. Soc., XXV, p. 69 [1898].)

Material received :

1 ♂, S. Manoembai (Aroe Isl.), 25.III.1929.

A very common cosmopolitan species extending completely round the tropical and subtropical belt. During September and October it engages in long flights when it may be seen travelling in one direction, usually S. W., literally in thousands. This habit of flight, as well as its ability to breed in standing as well as running waters, probably accounts from the dominant position it holds in the Order. Curiously enough, it has not so far penetrated into Europe although it has extended far north in both Asia and America.

Except in size, which is not however very variable, it shows no variation in colour or markings.
